

RECENTLY RECOGNIZED SPECIES OF CRATAEGUS IN
EASTERN CANADA AND NEW ENGLAND,— V.

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§ TOMENTOSAE

Anthers pink or rose color.

* Stamens 10 or less.

Crataegus fertilis, n. sp. Leaves oval to obovate, acuminate, gradually narrowed from near the middle and concave-cuneate at the entire base, sharply doubly serrate above, with straight teeth tipped with minute glands, and slightly divided above the middle into numerous narrow acuminate lobes; nearly fully grown when the flowers open and then membranaceous, sparingly villose, dark yellow-green above, pale below; at maturity thin but firm in texture, glabrous, dark green and lustrous on the upper surface, pale yellow-green on the lower surface, 7–9 cm. long, 5–6 cm. wide, with slender yellow midribs and 5–7 pairs of primary veins deeply impressed above; petioles slender, grooved, more or less broadly wing-margined often nearly to the middle by the decurrent base of the leaf blades, 1.5–2.5 cm. in length; stipules linear, acuminate, minute, caducous. Flowers about 1.6 cm. in diameter on long slender pedicels, in broad thin-branched many-flowered compound villose corymbs; bracts and bractlets linear, glandular, small, mostly deciduous before the flowers open; calyx-tube broadly obconic, villose at the base, glabrous above, the lobes broad, acuminate, coarsely glandular-serrate, villose on the inner surface, reflexed after anthesis; stamens 8–13, usually 10; anthers rose color; styles 2 or 3. Fruit on stout slightly villose pedicels, in wide many-fruited slightly drooping clusters, subglobose, short-oblong or rarely ovate, dark red, very lustrous, marked by few small pale dots, about 1 cm. long; calyx prominent with a broad deep cavity and enlarged coarsely serrate lobes villose on the upper side, erect and incurved, mostly persistent; flesh yellow, thick and succulent; nutlets 2 or 3, about 7 mm. in length, thick, full and rounded at the ends, ridged on the back, with a broad deeply grooved ridge, the ventral cavities broad and deep.

A shrub with numerous stems 3 or 4 m. in height and slender slightly zigzag branchlets marked by few large pale lenticels, orange-green when they first appear, soon becoming chestnut-brown and lustrous, darker during their second year and ultimately ashy gray, and armed with stout nearly straight bright red-brown spines 3.5–8.5 cm. in length. Flowers early in June. Fruit ripens about the 20th of September.

MAINE: middle Penobscot valley, river banks in rich alluvial soil, Orono, *M. L. Fernald*, May, June and September 1901.

To be distinguished from the closely related *Crataegus succulenta*, Link, by its thinner leaves, larger flowers, fewer stamens, erect calyx-lobes of the fruit, and usually stouter spines.

Crataegus dумicola, n. sp. Leaves oval to obovate, rounded and short-pointed or acute at the apex, concave-cuneate or rounded at the entire base, coarsely doubly serrate above, with glandular teeth, and slightly divided into numerous small acuminate lateral lobes; tinged with red and coated above with pale hairs as they unfold, more than half grown when the flowers open and then thin, dull yellow-green and sparingly villose on the upper surface, pale and glabrous on the lower surface; at maturity thin but firm in texture, dark yellow-green, lustrous, and scabrate above, pale below, 6–7 cm. long, 4–4.5 cm. wide, with slender yellow midribs and 4 or 5 pairs of thin primary veins arching obliquely to the points of the lobes; petioles stout, wing-margined often to the middle, villose at first, glabrous in the autumn, 9–14 mm. in length; stipules linear, acuminate, sometimes falcate, glandular, small, caducous. Flowers about 1.5 cm. in diameter on long slender slightly villose pedicels, in broad many-flowered thin-branched usually glabrous compound corymbs; bracts and bractlets linear, slightly glandular, small, mostly deciduous before the flowers open; calyx-tube broadly obconic, glabrous, the lobes abruptly narrowed from the base, slender, acuminate, finely glandular-serrate, villose on the inner surface, reflexed after anthesis; stamens 7–10, usually 8; anthers pink; styles 3. Fruit on rigid glabrous pedicels, in erect few-fruited clusters, subglobose, dark red marked by many small pale dots, about 1 cm. in diameter; calyx small, sessile, with a narrow shallow cavity and spreading lobes generally deciduous from the ripe fruit; flesh very thin and dry; nutlets 3, about 8 mm. in length, broad, rounded at the ends, ridged on the back, with a broad rounded ridge, the ventral cavities shallow, irregular, often obscure.

A shrub 2–3 m. in height with many small nearly erect branches, and stout nearly straight branchlets marked by few oblong pale lenticels, dark orange-green when they appear, orange-red and lustrous during the first season, becoming light red-brown the following year and ultimately ashy gray, and armed with stout nearly straight bright chestnut-brown shining spines 3.5–7 cm. long. Flowers during the first week of June. Fruit ripens about the middle of September and mostly falls before the end of the month.

MAINE: river thickets, Fort Fairfield, at the mouth of the Aroostook, *M. L. Fernald*, June and September 1901.

Crataegus rhombifolia, n. sp. Leaves broadly rhombic to obovate or rarely ovate on leading shoots, acute or acuminate, gradu-

ally narrowed to the entire base, coarsely and doubly serrate above, with straight glandular teeth, and slightly divided above the middle into many narrow acuminate lobes; nearly fully grown when the flowers open and then membranaceous, roughened above by short rigid pale hairs and slightly villose below along the slender yellow midribs and primary veins; at maturity thin but firm in texture, dull dark green and scabrate on the upper surface, pale yellow-green and still slightly villose on the lower surface, 6–7 cm. long, about 5 cm. wide; petioles stout, more or less wing-margined above, slightly villose, about 1.5 cm. in length. Flowers 1.2 cm. in diameter on long slender villose pedicels, in compact thin-branched many-flowered hairy compound corymbs; bracts and bractlets linear, acuminate, glandular, mostly caducous before the flowers open; calyx-tube narrowly obconic, villose at the base, glabrous above, the lobes broad, acuminate, very coarsely glandular-serrate often only above the middle, villose on the inner surface, reflexed after anthesis; stamens 10; anthers purple; styles 2 or 3. Fruit on erect rigid slightly villose pedicels, in few-fruited clusters, subglobose, often hairy at the base, bright clear red, lustrous, 8 or 9 mm. in diameter; calyx enlarged, with a wide shallow cavity and broad coarsely serrate spreading and closely appressed lobes densely coated above with long white hairs; flesh thin, yellow, dry and mealy; nutlets 3, 7 mm. long, full and rounded at the ends, thick, slightly ridged on the back, with a broad low ridge, the ventral cavities short, deep and narrow.

A shrub 1–2 m. in height with slender nearly straight branchlets bright orange-colored when they first appear, becoming bright chestnut-brown and lustrous during their first season and light red-brown the following year, and armed with many stout straight chestnut-brown shining spines 2.5–3 cm. in diameter. Flowers during the first week of June. Fruit brightly colored and full grown by the middle of August, ripening a month later.

CONNECTICUT: rare; sandy terrace near Trading Cove, Norwich, *C. B. Graves*, August 23, 1900, June 4, 1901; Southington, *C. H. Bissell*, June and September 1901.

Crataegus Robinsoni, n. sp. Leaves obovate, acute or acuminate, gradually narrowed from above the middle and cuneate at the entire base, finely and often doubly serrate above, with straight or incurved teeth tipped with bright red glands, and slightly divided into 3 or 4 pairs of short acute lateral lobes; when they unfold conspicuously plicate, light yellow-green and covered above with short shining white hairs and glabrous below, about one-third grown when the flowers open, and at maturity thin and firm in texture, dark yellow-green and lustrous on the upper surface, paler on the lower surface, about 4.5 cm. long, 3–4 cm. wide, with very slender midribs and thin primary veins extending obliquely to the points of the lobes; petioles

slender, grooved, more or less wing-margined toward the apex, glandular with minute dark red glands, 1.5–1.8 cm. in length. Flowers 8–10 mm. in diameter on short slender pedicels, in compact mostly 6–7-flowered thin-branched sparingly villose compound corymbs; bracts and bractlet linear, acuminate, bright red, mostly deciduous before the opening of the flowers; calyx-tube narrowly obconic, light green, the lobes narrow, red at the acuminate apex, tipped with bright red glands, finely serrate or nearly entire, pubescent on the inner face, reflexed after anthesis; stamens 5–7, usually 5; anthers large, magenta; style 2–4, usually 3. Fruit on bright red elongated glabrous pedicels in drooping clusters, oblong to slightly obovate, full and rounded at the apex, gradually narrowed to the base, bright scarlet, lustrous, marked by occasional large dark dots, about 1 cm. long, 7–8 mm. wide; calyx prominent, with a short tube, a broad deep cavity and reflexed and closely appressed lobes pubescent on the upper surface, usually persistent; nutlets generally 3, thin, acute at the ends, prominently ridged on the back with a broad often grooved ridge, the ventral pits broad but shallow, about 6 mm. in length.

A shrub or small tree sometimes 3 m. in height with a slender stem occasionally 1 dm. in diameter, covered with ashy gray bark scaly toward the base, slender erect branches and thin nearly straight branchlets marked by a few large pale lenticels, light orange-green when they first appear, bright red or red-brown and lustrous during their first and dark gray-brown during their second year, and unarmed or sparingly armed with short stout light chestnut-brown shining spines. Flowers during the first week of June. Fruit ripens early in October.

NOVA SCOTIA: Lock Broom, near Pictou, *Isabelle McCabe*, June and October 1902; Rustico, Pictou County, *C. B. Robinson* and *Florence Scott*, June 1902.

One of the most distinct of all the species belonging to this difficult group and well characterized by its small thin nearly glabrous leaves with very slender midribs and veins, small flowers with few stamens, oblong or obovate fruits, and by the unusually shallow cavity on the ventral faces of the nutlets. Received with numerous other forms of northern Nova Scotia from Mr. C. B. Robinson, Science Master of the Pictou Academy for whom it is named.

***Crataegus aquilonaris*, n. sp.** Leaves ovate to oval, acuminate, broadly cuneate or rounded at the entire often oblique base, sharply and often doubly glandular-serrate, and slightly divided into numerous short broad acuminate lobes; nearly fully grown when the flowers open and then light yellow-green and covered with short lustrous

white hairs on the upper surface and pale and glabrous on the lower surface; at maturity membranaceous, dark yellow-green and scabrate above, pale below, 5-6 cm. long, 3.5-4 cm. wide, with thin yellow midribs and primary veins; petioles slender, more or less wing-margined at the apex, grooved, glandular at first, with minute deciduous glands, often rose-colored in the autumn, 1.5-2 cm. in length; stipules linear, acuminate, often falcate, glandular, caducous; on vigorous shoots leaves long-pointed, coarsely serrate, subcoriaceous, often 8 cm. long and 6 cm. wide, with thick rose-colored midribs and stout petioles broadly winged to below the middle, and lunate coarsely serrate persistent stipules. Flowers on short pedicels in slightly villose many-flowered compound corymbs, with long 3-flowered peduncles from the axils of the two upper leaves; calyx-tube narrow, elongated, slightly villose below the middle, the lobes long, slender, acuminate, tipped with bright red glands, finely glandular-serrate, villose on the inner surface, reflexed after anthesis; stamens 5-10, usually 5; anthers purple; styles 2 or 3. Fruit on slender glabrous or slightly villose pedicels, in few-fruited drooping clusters, oblong, gradually narrowed to the rounded ends, dull greenish red, not fully ripe the middle of September, 1 cm. long, about 8 mm. wide; calyx small, with a narrow shallow cavity and spreading closely appressed nearly entire lobes, villose above the middle and dark red toward the base on the upper side; flesh greenish yellow; nutlets 2 or 3, about 8 mm. long, full and rounded at the ends, ridged on the back, with a very broad high slightly grooved ridge, the ventral cavities broad but shallow, oblique, widening from the base of the nutlet upward to its margins.

A shrub 2 or 3 m. in height with upright stems and stout nearly straight branchlets marked by small pale lenticels, light orange-green when they first appear, orange or reddish brown and lustrous during their first season and dull gray-brown the following year, and armed with stout slightly curved or straight bright chestnut-brown shining spines 2-3.5 cm. in length. Flowers from the 10th to the middle of June. Fruit probably ripens toward the end of September.

PROVINCE OF ONTARIO: Nipissing; not common and the only species reported, *Milton Jack*, June 15 and September 18, 1902.

Very distinct in the shape and thinness of the leaves, in the oblong fruits and in the short stout spines.

* * Stamens 20.

Crataegus membranacea, n. sp. Leaves elliptical to obovate, or rarely ovate, acute or acuminate, cuneate or occasionally rounded at the entire often oblique base, coarsely doubly serrate above, with straight glandular teeth, and divided into 4 or 5 pairs of short acumi-

nate lateral lobes; more than half grown when the flowers open and then very thin, light yellow-green and roughened above by short rigid white hairs, pale and glabrous below with the exception of a few hairs along the base of the midribs; at maturity membranaceous, yellow-green, lustrous and scabrate on the upper surface, pale on the lower surface, 6–7.5 cm. long, 4–6 cm. wide, with slender midribs and 4 or 5 pairs of thin primary veins extending obliquely to the points of the lobes; petioles slender, grooved, mostly wing-margined to below the middle, sparingly glandular, with minute red deciduous glands, often rose-colored late in the season like the under side of the midribs, 1.2–1.6 cm. in length. Flowers 1.8–2 cm. in diameter on long slender pedicels, in broad many-flowered thin-branched slightly villose compound corymbs; bracts and bractlets acuminate, bright red, small, mostly deciduous before the flowers open; calyx-tube broadly obconic, glabrous, the lobes wide, acuminate, conspicuously glandular-serrate, villose on the inner face, reflexed after anthesis; stamens 20; anthers pale rose-color; styles 3–5, usually 3. Fruit on slender glabrous pedicels, in few-fruited spreading clusters, oblong, full and rounded at the ends, 1–1.1 cm. long, 9–10 mm. wide, crimson, lustrous, marked by few large pale dots; calyx prominent with a broad deep cavity and spreading closely appressed coarsely glandular-serrate lobes, villose and bright red at the base on the upper side; flesh yellow, thick and succulent; nutlets usually 3, about 7 mm. in length, rounded at the ends, broad, ridged, the ventral cavities wide and deep.

A tall shrub, rarely arborescent in habit with a short stem 7 or 8 cm. in diameter, and slender nearly straight or slightly zigzag branchlets marked by small pale lenticels, glabrous and light orange-green when they first appear, light red-brown and lustrous during their first season, becoming dark gray-brown the following year and armed with slender nearly straight light chestnut-brown shining spines 2.5–4 cm. in length. Flowers at the very end of May. Fruit ripens the middle of September and soon falls.

VERMONT: clay soil on lime stone ridges, Middlebury, *Ezra Brainerd*, September 1900, May and September 1901.

Well distinguished from the other species of this group with 20 stamens, by its very thin mostly elliptical leaves, larger flowers and early-ripening fruits with usually three nutlets.

ARNOLD ARBORETUM.